

## METHOD FOR GENERATING HYDROGEN FOR FUEL CELLS

### ABSTRACT OF THE DISCLOSURE

A method of generating a H<sub>2</sub> rich gas from a fuel includes supplying a mixture of molecular oxygen, fuel, and water to a fuel processor, and converting the  
5 mixture of molecular oxygen, fuel, and water in the fuel processor to the H<sub>2</sub> rich gas. The fuel has the formula C<sub>n</sub>H<sub>m</sub>O<sub>p</sub> where n has a value ranging from 1 to 20 and is the average number of carbon atoms per mole of the fuel; m has a value ranging from 2 to 42 and is the average number of hydrogen atoms per mole of the fuel; and p has a value ranging from 0 to 12 and is the average number of oxygen atoms per mole of the  
10 fuel. The molar ratio of molecular oxygen supplied to the fuel processor per mole of fuel is a value ranging from about 0.5x<sub>0</sub> to about 1.5x<sub>0</sub>, and the value of x<sub>0</sub> is equal to  $0.312n - 0.5p + 0.5(\Delta H_{f, \text{fuel}}/\Delta H_{f, \text{water}})$  where n and p have the values described above,  $\Delta H_{f, \text{fuel}}$  is the heat of formation of the fuel, and  $\Delta H_{f, \text{water}}$  is the heat of formation of water.